researcher. "That's fine — enough to do good science — but it's very rare."

● The next and fundamental ailment: "The total lack of a system that produces scientists". Blasi and his permanent research staff of 45 have between them 20 or so 'doctoral students' — in fact, students skipping lectures at the university to help — for no pay — at the laboratory. The students get no extra degree for their work, just the usual first (and only) degree of the university. And afterwards there are almost no fellowships. "It is of major importance to understand that universities are organized to *prevent* people learning science; so students take the formal university teaching very unseriously, and what they do in the lab very seriously." Blasi, though a professor, clearly does not have much love for the university system. However, the number of these students willing to work full-time is decreasing, Blasi says, as the formal demands of the university are increasing, and it becomes less easy to skip lectures and still pass exams. (The new 'doctor in research' degrees from the universities will replace three or four of these 20 students but the number of willing helpers will fall, Blasi thinks.)

● The next problem facing a research director is mobility, Blasi says. If he needs a specialist in a new technique (say producing monoclonal antibodies) "it's very complicated. It's essentially impossible to take someone from one institution and put him in another." The problem is solved by sending someone abroad, or to another laboratory, for training, "but it's not so good, not very efficient".

● Then: power. "Too much is down to the personal power of some people; and there is a total lack of connection between the power of a person, or his institute or whatever, and what he really produces."

● Finally: the bureaucracy. The political situation has completely changed since the 1960s, says Blasi. Then Italy was a private enterprise country. Now it is state-controlled. While that has its advantages, "the bureaucracy is terrible, it stops everything and it helps only what is worst . . .". Bureaucracy permeates the whole university and scientific structure of Italy, says Blasi. And as for the reform of the CNR, the planned reorganization that might bring it out of the *parastato* limbo: "the law for the universities [voted in 1980] took 30 years! These things can take for ever."□

In memory of Buzzati Traverso

A dream unfulfilled


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Adriano Buzzati Traverso, una vita per la scienza

Prima a Napoli, negli anni Sessanta, tra i ricercatori di Biologia molecolare, poi missionario schierato contro il pericolo nucleare

Il manager della ricerca

Scienziato ma bizzarro

E' scomparso a Milano Adriano Buzzati Traverso, biologo di fama internazionale

La genetica come scuola

Adriano Buzzati Traverso

PROFESSOR Adriano Buzzati Traverso of Milan, geneticist, co-founder of the Scripps Oceanographic Institution in the United States, had a dream. Italy was to have a campus devoted to molecular biological research. It would teach, grant PhDs, be run — at first — by mostly American professors, have international funding and would become such a mecca that — according to one fellow-dreamer — "even Crick and Watson would want to pay us visits".

The nucleus of the campus was set up in 1962 in temporary accommodation in Naples: this 'seed' institute, to prepare the first Italian scientists and technicians and establish a core team, was called the International Laboratory for Genetics and Biophysics (IIGB). It is still there, in the same temporary buildings, 21 years later. Only the name has changed: now it is an 'institute' rather than a 'laboratory', the IIGB. (Its current problems — its strange history forgotten — are described above by its present director.)

Buzzati Traverso died while this very article was being prepared. But his dream died long before. Born in the early sixties, already ailing by 1967 because of total opposition from the professors of the University of Naples, the dream was finally destroyed in the left-wing student 'troubles' of 1968–69.

But Buzzati came so close to realizing his project, it seems incredible that it never happened. The German biostructurist, Professor Werner Schreil, abandoned a good post in the United States to join Buzzati Traverso in Naples. "I had not the slightest doubt that the campus would get going," he said.

Buzzati raised the money: $1 million in grants from the US National Science Foundation is said to have been sitting in an Italian bank, waiting for the institute to start in earnest, to help finance staff costs and travel; and a high-level treaty was signed between Italy and the United States to cover the needs of the institute. Euratom (the European nuclear energy agency) put up 180,000 European Accounting Units (about $180,000) a year to support the seed IIGB for five years, and — according to Raymond Appleyard, the Euratom assessor of the time, "supported the lab through thick and thin". Two Italian institutions — CNR and the nuclear agency CNEN — would provide and were providing the remaining 60 per cent of the budget.

Buzzati had chosen a director, American Daniel Mazia of the University of California at Berkeley, who took to flying over every year and asking "when can I start?"; and a site was marked out in Naples. Magnetic fields were measured to find appropriate places for sensitive electron microscopes; and plans were prepared for a real campus with fixed buildings, student lodgings, tennis courts, a swimming pool, two canteens. It was to be a standard American campus, but in Italy. A five-year curriculum was worked out, and ceremonial keys were even cut to mark the opening of buildings.

But the plans created tremendous opposition at the University of Naples, according to Professor Schreil, who felt all the hopes and suffered all the set-backs of Buzzati Traverso over his institute. Schreil is still at IIGB, at the age of 58 essentially trapped there. "There was real fear of the potential competence of this place" says Schreil "just as there was of the Zoological Station" (see opposite), although the latter was not really competition for anything the university had already been doing. Buzzati's planned 'studium' — as it was called — was.

It was to be established in the Mostra d'Oltremare, an old fascist relic: a park set out by Mussolini in Naples with African animals and even an Abyssinian village with Abyssinians leading 'authentic' Abyssinian lives. (The park has decayed now, though still open; the Abyssinians have gone, and most of the animals too). CNR rented a large area there for the 'studium'. But then the university began to lash back. The professors had a lot of influence on the city council, so building permits were blocked.

"We couldn't get permits," says Schreil "because the council said they had to maintain a balance between building and parkland area". But other constructions went up on the same grounds.

The first curriculum was supposed to start in 1967. It was postponed to 1968, then 1969: and then the student revolution struck. "The students" Schreil claims "found an alliance with the most fascistic,

Schreil — mourns Buzzati Traverso

most extreme elements of the University of Naples. They teamed up". The slogans of "Help Laos, throw the Americans out of Vietnam, help the Khmer Rouges", were merged with "throw those university barons out of the LIGB!". The extreme right subsidized and helped the extreme left, Schreil says: "Everybody knew it."

But weren't the University of Naples people also 'barons', and so equally likely to suffer the scorn of the students? Yes, says Schreil, but the successful university tactic was to divert the attention of the students to LIGB. Presumably, given the strong American content of the laboratory, and the anti-American feeling of the times, this was not difficult.

So in the spring of 1969, the LIGB was occupied for three months by students and some of its staff, technicians and 10 Italian research fellows who, says Schreil, wanted permanent positions. (Buzzati's idea had been that the fellows would work three years at LIGB, then go to the United States, and then return — if they wanted to, and were good enough).

But Buzzati Traverso and his closer colleagues were not interested in politics, whereas — according to the Euratom observer — the occupiers "were extremely able politically". So "they made rings round the professors". Buzzati asked CNR what to do — should he call the police? — but he received no assistance. He gave CNR an undated letter of resignation which, at a certain point, CNR used. From then the dream was over. Buzzati Traverso was sent immediately to UNESCO as an assistant director-general, where he stayed four years; and he spent the last decade of his life campaigning against nuclear weapons.

"Buzzati made one last attempt to save the institute," says Schriel. Just before Buzzati's 'resignation', and with the secret letter already on the CNR president's desk, Schreil had a dinner party which included the German ambassador, the German consul in Naples, people from Euratom and other influential persons — and Buzzati. "Buzzati had given up," says Schreil. "He said 'I have given everything to these people — they don't know what they want — I might withdraw'. But everyone at the party pressed him very hard to keep trying, and though he had definitely abandoned Naples, he said he would try Rome. Hurried plans were made to transfer the LIGB to a place in Professor Levi Montalcini's institute in Rome. But in a very short time she came under very heavy pressure — now from the University of Rome — to withdraw from the scheme. For Buzzati this was the last straw. Two weeks after the Naples dinner, he 'resigned'.

Now the remnant IIGB continues, and has even become the largest and a successful, CNR institute (see above). But even the present director, Professor Francesco Blasi, admits its total output declined since the early years, when there was a number of foreigners in the laboratory. "But if you consider the Italian element, that's not true . . .". While the foreign element has all but vanished — Professor Schreil is the sole exception — the Italian contribution has risen steadily over the 1960s, and also stimulated the university to take molecular biology seriously — so that Naples is now, after all, the principal city for molecular biology in Italy (or so Professor Blasi believes). That, at least in part, must be regarded as an achievement of Buzzati Traverso.

However, today's IIGB is not a 'studium'. Some say Buzzati Traverso was naive to think that he could ever have succeeded with his plan in Italy. His American friends, who knew the country, had warned him repeatedly of the danger of some kind of coup. But Schreil says he was not naive: "He just didn't care for details. He didn't want to get involved in the day-to-day affairs". For him the student revolution and the university opposition were such "day-to-day affairs"; eventually they overtook him. □

The Naples Zoological Station

The Woods Hole of Europe?

"I AM going to establish in Naples a large aquarium for the public" wrote Anton Dohrn, German zoologist and Darwinist, in 1870. "A further floor will be reserved for the scientists . . . the land behind the Villa Reale down by the sea is very cheap and the building stone can be obtained nearby. The tuff for the grottoes can be brought in masses from Vesuvius, the seawater is always fresh in front of the door, and the animals occur by the million in the sea; all can be done very cheaply".

The result was the Stazione Zoologica, the zoological station of Naples, which became a magnet for European (and American) biologists for almost a century. The station has had close links with Britain: Dohrn met T.H. Huxley in 1867, and became a warm friend of family; Huxley introduced Dohrn to Darwin, who was one of the first visitors to the station after research began in 1873; and right up to the present J.Z. Young uses the abundant squid and octopus of the bay of Naples to perform his experiments on nervous conduction at the station.

The history of the station is golden and delightful — but there is hardly room here to give even a thumbnail sketch of it: we are concerned with more recent times. There is interesting reading, though, in somewhat earlier editions of *Nature*: Dohrn also knew Norman Lockyer, the first editor of *Nature*, and he wrote a number of articles for Lockyer between 1871 and 1875. Enough perhaps to say that 18 Nobel laureates have worked there, from Van't Hoff to Karl von Frisch. They were attracted by many things, which grew up together: first, of course, abundant fauna in the bay, brought fresh to the station (which was right on the beach); then fishermen, paid for by the station, who came to know the scientists' every needs, and the fine detail of the life of the bay; the development of superb staining and cutting methods, and preservation techniques by a technician (named Bianco); the best microscopes (Zeiss, another friend of Dohrn, tried out his prototypes at the station); the eventual atmosphere of a continuous scientific conference; a good library (now superb); the stimulus and entrepreneurship of Dohrn himself, who could charm and befriend people from kings to fishermen; and the excitement — in the early days — of applying the new Darwinian theories.

Some of these special reasons for the station have now vanished, however, and the number of visiting scientisits has dwindled from a peak of over 200 in 1960, to only a few tens today. But the station is still doing good work, the fauna is still rich despite the patchy pollution of the bay, and the staff of the station and still-devoted visitors are thinking of some kind of revival.

The station stayed in the Dohrn family for three generations — the last, Peter Dohrn, resigned with his governing council in the student revolution of 1968–69, when the students and technicians decried the station as a 'scientific hotel' for foreigners, of no benefit to Italians or Italy.

There is some truth in that: 1968–69 was "a palace revolt" at the station, says American Dr Carmello Thomas — who has been brought in to restart the marine botany division of the station (it had been defunct for five years). The budget of the station was ailing, and staff did not know from month to month whether they would be paid.

But since 1969, and particularly since December 1982, which brought a new law for the station, it has been thoroughly Italian, a National Institute of Italy, putting it in the same situation as the astronomical community (in their 'observatories'), embraced at last by the very *parastatale* condition that is choking the